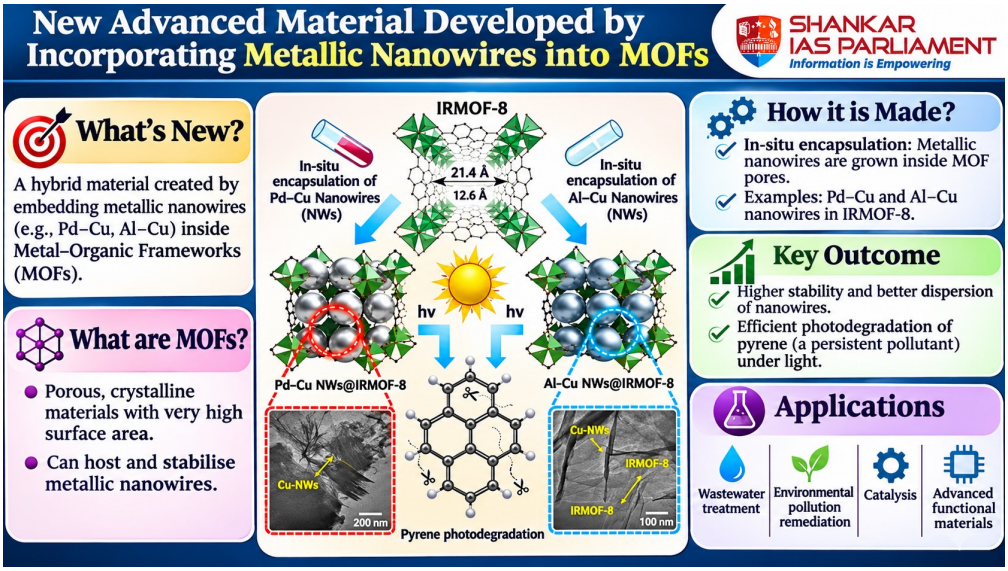
Metal organic Frameworks (MOF) based hybrid material

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Why in News?

Scientists at the Institute of Advanced Study in Science and Technology (IASST), Guwahati, developed a MOF-based hybrid material incorporating metallic nanowires that removes up to 99% of pyrene, a persistent polycyclic aromatic hydrocarbon pollutant, under light irradiation and ultrasonication.

- **Framework & Nanowires–** Copper nanowires (Cu NWs) integrated with palladium (Pd) or aluminum (Al) are confined inside a porous metal–organic framework-8 (**IRMOF-8**) structure.
- **Removal Efficiency–** The Pd-modified Cu NW in IRMOF-8 achieved **99%** pyrene removal, while the Al-modified alternative achieved **85%** removal under the tested irradiation and ultrasonication conditions.
- **Cost & Light Absorption–** Pd boosts broadband light absorption through plasmonic interactions, while abundant, lower-cost Al serves as an antenna-reactor alternative to support interfacial charge transfer and photocatalytic breakdown.



Reference

PIB| New advanced material developed by incorporating metallic nanowires into MOFs



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